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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/772,188

02/03/2004

Nicholas Gralenski

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01/22/2007

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EXAMINER

MOORE, KARLA A

ART UNIT

PAPER NUMBER

1763

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/772,188

Applicant(s)

GRALENSKI, NICHOLAS

Examiner

Karla Moore

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2, 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.)
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Newly submitted claim 19 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 2 and 16-18 have a combination/subcombination relationship with claim 19. Inventions in this relationship are distinct if it can be shown that (1) the combination (claims 2 and 16-18) as claimed does not require the particulars of the subcombination (claim 19) as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the subcombination does not require that the heating element is extends through an atmospheric processing chamber with aluminum walls and/or a plenum for receiving an inert gas and/or aluminum rails and/or cooling channels and/or heating elements provided in a plurality. The subcombination has separate utility such as in a vacuum processing chamber.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits.

Accordingly, claim 19 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2 and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claim 2, the phrase "such as", at row 6 of the claim, renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,477,718 to Crain et al. in view of U.S. Patent No. 3,836,751 to Anderson and U.S. Patent No. 5,329,097 to Jones et al. and U.S. Patent No. 4,101,759 to Anthony et al.

8. Crain et al discloses an atmospheric pressure furnace substantially as claimed and comprising: a process chamber having opposing sides defining an entrance and an exit (Figures 2 and 5; column 2, rows 47-49) defining an entrance and an exit; a plenum (Figure 4, 56; column 4, rows 44-45 and 66-68), 10 and Figure 5, 14 and 16) adjacent the opposing sides of the process chamber capable of receiving a flow of inert gas (column 3, rows 34-47 and column 5, row 63 through column 6, row 4); rails (Figure 2, 19) provided on interior walls of the process chamber for slidably transporting one or more workpieces from the entrance of the process chamber to the exit for continuous processing; a plurality of elongated heating elements (Figures 2-5, 50), extending through apertures in the process chamber into each plenum, said heating elements arranged in a planar array, each heating element comprising a resistive wire, enclosed in a respective ceramic sleeve (column 4, rows 9-12) such that the workpiece is protected from contamination by the heating elements at high temperatures and the heating elements are protected from contamination by the workpiece; and cooling channels (74) disposed in the exterior surface of the process chamber (column 4, rows 66-68). The resistive wires extend longitudinally through the ceramic sleeve such that the wires are free to expand and contract in response to temperature changes (column 4, rows 10-12).

9. However, Crain et al. fail to teach the process chamber having highly polished interior surfaces.

10. Anderson teaches the use of polished aluminum surfaces in a workpiece heating apparatus for the purpose of reflecting and directing heat from heating elements (column 3, rows 4-12).

Art Unit: 1763

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the walls of Crain et al. as polished aluminum walls in order to reflect and direct heat from heating elements as taught by Anderson.

12. Crain et al. further fail to explicitly teach the rails are made of aluminum, Anderson teaches that aluminum can be used as a construction material in a furnace for reflecting and directing heat from heating elements, as described above.

13. It would have been obvious to one of ordinary skill in the art that because the rails are also a structure located in the furnace and in contact with the heating sources by providing them made of metal, they too could be made to reflect and direct heat from heating elements as needed as taught by Anderson.

14. Crain et al. and Anderson disclose the invention substantially as claimed and as described above.

15. However, Crain et al. and Anderson fail to teach the ceramic tubing as alumina and the resistive wires as "Kanthal" (i.e. an alloy of mainly iron, chromium, and aluminum).

16. Jones et al. teach the use of a heater having a resistive wire comprising an alloy of mainly iron, chromium and aluminum surrounded by alumina material for the purpose of choosing design materials capable of operation at high temperatures and in oxygen (column 4, rows 55 through 5, row 54 and column 8, rows 35-61).

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a heater having a resistive wire comprising an alloy of mainly iron, chromium and aluminum surrounded by alumina material in Crain et al. and Anderson in order to choose design materials capable of operation at high temperatures and in oxygen as taught by Jones et al.

18. Crain et al., Jones et al. and Anderson et al. disclose the invention substantially as claimed and as described above.

19. However, Crain et al., Jones et al. and Anderson et al. fail to teach cooling channels disposed in the wall of the process chamber.

Art Unit: 1763

20. Anthony et al. disclose providing cooling channels conformably disposed in the exterior surface of the walls for removing non-reflected heat (80 and 120).

21. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided cooling channels in the wall of Crain et al., Jones et al. and Anderson et al. in order to remove non-reflected heat as taught by Anthony et al.

22. With respect to claim 16, Kanthal, *by its nature*, forms an aluminum oxide at high temperatures as claimed (see paragraph 4 on page 21 of present specification).

23. With respect to claim 17, as described above, the apparatus of Crain et al. comprises first and second planar arrays of heating elements disposed above and beneath the workpiece. With respect to a specific distance between each of the elements in the arrays (horizontally) and/or between the two arrays (vertically) the courts have ruled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

24. With respect to claim 18, which is drawn to a specific processing condition that relates to a method that may be performed using the apparatus as well as a substrate that may be processed using the apparatus, the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). The courts have also ruled that inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F.2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1763

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karla Moore
Primary Examiner
Art Unit 1763
17 January 2007